1)Np – Chart

A receiving inspection station regularly samples 125 incoming washers to determine whether the inner diameter conforms to specifications. The number of nonconforming washers detected in the last 10 lots is shown below. **Develop an np-chart to document the findings. Average, UCL, LCL Trends? Runs? Out of Control?**

|  |  |  |
| --- | --- | --- |
| Lot # | # Nonconforming | Proportion Nonconforming |
| 1 | 12 |  |
| 2 | 9 |  |
| 3 | 8 |  |
| 4 | 13 |  |
| 5 | 14 |  |
| 6 | 11 |  |
| 7 | 6 |  |
| 8 | 8 |  |
| 9 | 13 |  |
| 10 | 14 |  |

2)X S chart

A hospital administrator is studying how long an emergency room patient waits to see a physician during the midnight to 8AM shift. The study is limited to those patients who actually do see a physician, and the amount of waiting time has been carefully, operationally defined. Each day, the first 15 records are studied. Here are the results:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** | **Day 6** | **Day 7** | **Day 8** |
| 2 | 26 | 19 | 24 | 40 | 31 | 39 | 16 |
| 32 | 2 | 18 | 33 | 22 | 13 | 41 | 24 |
| 8 | 40 | 15 | 46 | 23 | 15 | 8 | 27 |
| 30 | 17 | 18 | 20 | 40 | 4 | 37 | 17 |
| 38 | 12 | 18 | 32 | 34 | 35 | 17 | 13 |
| 24 | 14 | 18 | 5 | 7 | 40 | 48 | 30 |
| 31 | 9 | 44 | 48 | 23 | 41 | 36 | 44 |
| 46 | 45 | 3 | 20 | 27 | 39 | 32 | 23 |
| 49 | 13 | 28 | 39 | 31 | 31 | 40 | 50 |
| 32 | 43 | 47 | 2 | 45 | 17 | 30 | 41 |
| 32 | 42 | 44 | 16 | 23 | 18 | 38 | 18 |
| 10 | 33 | 3 | 12 | 45 | 32 | 22 | 14 |
| 43 | 7 | 13 | 36 | 15 | 8 | 1 | 30 |
| 27 | 4 | 37 | 47 | 43 | 30 | 33 | 9 |
| 41 | 34 | 5 | 40 | 5 | 28 | 13 | 44 |